

Claims

1. A process for the production of an [ $^{18}\text{F}$ ]fluorohaloalkane which comprises  
 5 treatment of a solid support-bound precursor of formula (I):



wherein n is an integer of from 1 to 7 and X is chloro, bromo or iodo;  
 with  $^{18}\text{F}^-$  to produce the [ $^{18}\text{F}$ ]fluorohaloalkane of formula (II)



wherein n and X are as defined for the compound of formula (I), optionally followed by

- (i) removal of excess  $^{18}\text{F}^-$ , for example by ion-exchange chromatography; and/or  
 15 (ii) removal of organic solvent.

2. A process for the production of an [ $^{18}\text{F}$ ]fluorohaloalkane according to claim 1 wherein n is an integer of 1 to 4, preferably 1 or 2.

- 20 3. A process for the production of an [ $^{18}\text{F}$ ]fluorohaloalkane according to claim 1 or 2 wherein the compound of formula (II) prepared is selected from [ $^{18}\text{F}$ ]fluorobromomethane, [ $^{18}\text{F}$ ]fluoriodomethane, [ $^{18}\text{F}$ ]fluorobromoethane, [ $^{18}\text{F}$ ]fluoriodoethane, [ $^{18}\text{F}$ ]fluorobromopropane, and [ $^{18}\text{F}$ ]fluoriodopropane

- 25 4. A compound of formula (I) as defined in claim 1:



wherein n is an integer of from 1 to 7 and X is chloro, bromo or iodo.

30

5. A compound of formula (I) according to claim 4 wherein n is an integer of from 1 to 4, and is preferably 1 or 2.

6. A radiosynthesis kit for the preparation of an [ $^{18}\text{F}$ ]fluorohaloalkane for use in PET chemistry, which comprises:

- 5 (i) a vessel containing a compound of formula (I) as defined in any one of claims 1 to 3; and
- (ii) means for eluting the vessel with a source of  $^{18}\text{F}^-$ ; and
- (iii) an ion-exchange cartridge for removal of excess  $^{18}\text{F}^-$ .

7. A cartridge for a radiosynthesis kit which comprises:

- 10 (i) a vessel containing a compound of formula (I) as defined in any one of claims 1 to 3; and
- (ii) means for eluting the vessel with a source of  $^{18}\text{F}^-$ .